

REMARKS

Reexamination and reconsideration of the present application are requested.

Applicants have amended the drawings as requested by the Examiner. No new matter has been added. Applicants have canceled claims 24-50 without prejudice or disclaimer of the underlying subject matter, and added new claims 51-58.

Accordingly, claims 1-23 and 51-58 remain pending in the application.

DRAWINGS

The Office Action objected to FIGS 1A-2B because the figures did not include the label "Prior Art."

By this Amendment, Applicants have provided corrected Drawings for FIGs. 1A-2B that include the label "Prior Art."

35 U.S.C. § 102

The Office Action rejected claims 1-3, 6, 13, 16-17, 20 and 22 under 35 U.S.C. § 102 over Baluswamy et al. U.S. Patent 6,514,643 ("Baluswamy").

Applicants respectfully traverse those rejections for at least the following reasons.

Claim 1

Among other things, the overlay key of claim includes a second auxiliary overlay pattern **formed at a location corresponding to the first auxiliary overlay pattern**. Accordingly, as explained in Applicant's specification with respect to an exemplary embodiment shown in FIGs. 3A-C, for example the first and second auxiliary overlay patterns may be used to measure, with an in-line scanning electron microscope (SEM), an overlay degree between the first and second overlay keys.

Applicants respectfully submit that Baluswamy does not disclose an overlay key that includes such a feature.

The Office Action states that the element 240 in FIG. 5 of Baluswamy corresponds to a second auxiliary overlay pattern and that element 220 corresponds to

a first auxiliary overlay pattern. However, Applicants respectfully submit that element 240 in FIG. 5 of Baluswamy is **not** “**formed at a location corresponding to**” element 220. The element 240 is formed at a different location, laterally isolated with respect to the location of element 220. Therefore, the overlay key shown in FIG. 5 of Baluswamy cannot correspond to the overlay key of claim 1.

Accordingly, for at least this reason, Applicants respectfully submit that claim 1 is patentable over Baluswamy.

Claims 2-3, 6, 13, 16-17, 20 and 22

Claims 2-3, 6, 13, 16-17, 20 and 22 all depend from claim 1 and are all deemed patentable over for at least the reason set forth above with respect to claim 1, and for the following additional reasons.

Claim 16

Applicants respectfully submit that neither element 210 nor element 230 in FIG. 5 of Baluswamy has a substantially rectangular shape. By its very definition, a rectangle is a closed plane figure having four sides. Neither element 210 nor element 230 of FIG. 5 of Baluswamy is a closed plane figure having four sides.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 16 is patentable over Baluswamy.

Claim 22

Applicants respectfully submit that element 210 of FIG. 5 of Baluswamy is **not** “defined by imaginary lines extended from two parallel outside lines of” element 230.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 22 is patentable over Baluswamy.

35 U.S.C. § 103

The Office Action rejected claims 4-5, 7-12, 14-15, 18-19, 21 and 23 under 35 U.S.C. § 103 over Baluswamy in view of Smith et al. U.S. Patent 6,573,986 (“Smith”).

Applicants respectfully traverse those rejections for at least the following reasons.¹

All of the claims 4-5, 7-12, 14-15, 18-19, 21 and 23 depend from claim 1. Applicants respectfully submit that Smith does not remedy the shortcomings of Baluswamy with respect to claim 1. Accordingly, Applicants respectfully submit that claims 4-5, 7-12, 14-15, 18-19, 21 and 23 are all patentable over Baluswamy in view of Smith for at least the reasons set forth above with respect to claim 1, and for the following additional reasons.

Applicants respectfully traverse the proposed combination of Baluswamy and Smith with respect to each of the claims 4-5, 7-12, 14-15, 18-19, 21 and 23 as lacking any suggestion or motivation in the prior art.

Smith is directed to an apparatus and method for creating a projection lens distortion map.

For each and every one of the numerous features of claims 4-5, 7-12, 14-15, 18-19, 21 and 23 that are missing from Baluswamy's overlay key, the Office Action proposes to add-in features from Smith for the same reason in all cases, merely citing language in col. 6, lines 20-35 of Smith. However, the supposed "benefits" cited in col. 6, lines 20-35 from Smith have nothing whatsoever to do with an overlay key, would not in any way apply to Baluswamy, and have no relationship whatsoever to any of the various features that the Office Action lifts from Smith and attempts to import into Baluswamy. For example, the cited text provides absolutely no motivation whatsoever for one to modify the overlay key of Baluswamy to make "a

¹ Applicants do not concede that Smith is indeed even prior art with respect to the present application, as Applicants' foreign priority date antedates Smith's filing date. Meanwhile, Applicants have no knowledge as to what, if anything, is disclosed in the provisional application from which Smith claims priority. However, as explained herein, in any event Smith is not properly combinable with Baluswamy and even if it were combinable, it would not produce the overlay keys of claims 4-5, 7-12, 14-15, 18-19, 21 or 23. Accordingly, at this time, Applicants will not provide a certified translation of their foreign priority document to remove Smith as prior art, although this right is of course reserved in the future if for some reason Smith should become relevant to Applicants' claimed invention.

length of the first main overlay pattern equal to a length of a corresponding side of the second main overlay pattern” as such a modification of Baluswamy would not provide any of the benefits cited in col. 6, lines 20-35 of Smith.

Accordingly, Applicants respectfully traverse the proposed combination of Baluswamy and Smith and respectfully request that all claim rejections based upon such a combination be withdrawn.

Claim 4

Among other things, in the overlay keys of claim 4 a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern.

Neither Baluswamy nor Smith discloses any overlay key including such a feature.

The Office Action fairly admits that Baluswamy does not disclose any overlay key including such a feature. However, the Office Action states that such a feature is disclosed in FIG. 1 of Smith.

Applicants respectfully disagree.

At the outset, FIG. 1 of Smith, cited throughout the Office Action, does not show any overlay keys at all, but instead shows a reticle schematic which is (only) one component of a system that may be used to form an overlay key. The patterns on the reticle 102 are not the same as an overlay key that may be actually formed using the patterns (see FIG. 21 which actually shows an overlay pattern that may be produced using the reticle of FIG. 1). So, FIG. 1 of Smith does not show any first and second main overlay patterns at all. Therefore, it is impossible for FIG.1 of Smith to show any overlay key where a length of a first main overlay pattern is equal to a length of a corresponding side of a second main overlay pattern.

Accordingly, for at least these additional reasons, Applicants respectfully submit that claim 4 is patentable over the cited prior art.

Claim 5

Claim 5 depends from claims 1 and 4 and is patentable for at least the

reasons set forth above with respect to claims 1 and 4 and for the following additional reasons.

Applicants respectfully submit that element 210 of FIG. 5 of Baluswamy is **not** “defined by imaginary lines extended from two parallel outside lines of” element 230.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 5 is patentable over the cited prior art.

Claim 7

Claim 7 depends from claims 1 and 6 and is patentable for at least the reasons set forth above with respect to claims 1 and 6 and for the following additional reasons.

As explained above, FIG. 1 of Smith does not show any overlay keys at all, but instead only shows a reticle schematic. Therefore, FIG. 1 of Smith does not and cannot show any second auxiliary overlay pattern including a plurality of holes spaced apart from each other.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 7 is patentable over the cited prior art.

Claim 8

Claim 8 depends from claims 1, 6 and 7 and is patentable for at least the reasons set forth above with respect to claims 1, 6 and 7 and for the following additional reasons.

As explained above, FIG. 1 of Smith does not show any overlay keys at all, but instead only shows a reticle schematic. Therefore, FIG. 1 of Smith does not and cannot show any overlay key where an interval between adjacent bars of a first auxiliary overlay pattern is larger than a width of a hole pattern of a second auxiliary overlay pattern.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 8 is patentable over the cited prior art.

Claim 9

Claim 9 depends from claims 1 and 6 and is patentable for at least the

reasons set forth above with respect to claims 1 and 6 and for the following additional reasons.

As explained above, FIG. 1 of Smith does not show any overlay keys at all, but instead only shows a reticle schematic. Therefore, FIG. 1 of Smith does not and cannot show any overlay key having any second auxiliary overlay pattern including a plurality second bar patterns having a smaller width than bar patterns of a first auxiliary overlay pattern

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 9 is patentable over the cited prior art.

Claim 10

FIG. 3 of Smith does not show any overlay keys at all, but instead only shows reticle features. Therefore, FIG. 3 of Smith does not and cannot show any first auxiliary overlay pattern including a plurality of hole patterns.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 10 is patentable over the cited prior art.

Claim 12

Claim 12 depends from claims 1, 10 and 11 and is patentable for at least the reasons set forth above with respect to claims 1, 10 and 11 and for the following additional reasons.

FIG. 20 of Smith does not show any overlay keys at all, but instead only shows a schematic for an overlay reticle. Therefore, FIG. 20 of Smith does not and cannot show any overlay key having any first auxiliary overlay pattern including a plurality hole patterns having a larger width than bar patterns of a second auxiliary overlay pattern. Applicants note that FIG. 20B appears to shown an actual overlay key, but it does not show first auxiliary overlay pattern including a plurality of hole patterns having a larger width than bar patterns of a second auxiliary overlay pattern.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 12 is patentable over the cited prior art.

Claims 14, 18 and 21

Claim 14 depends from claims 1, 2, and 13; claim 18 depends from claims 1, 16, and 17; and claim 21 depends from claims 1, 16 and 20. Claims 14, 18 and 21 are all patentable for at least the reasons set forth above with respect to the claims from which they respectively depend, and for the following additional reasons.

At the outset, as explained above, FIG. 1 of Smith does not show any overlay keys at all, but instead shows a reticle schematic. Meanwhile, FIG. 14 of Smith does show several different overlay keys, but it does not appear that in any of those patterns, a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern.

Accordingly, for at least this additional reason, Applicants respectfully submit that claims 14, 18 and 21 are all patentable over the cited prior art.

Claims 15 and 19

Claim 15 depends from claims 1, 2, 13 and 14, and claim 19 depends from claims 1, 16, 17 and 18. Claims 15 and 19 are each patentable for at least the reasons set forth above with respect to the claims from which they respectively depend, and for the following additional reasons.

Applicants respectfully submit that element 210 of FIG. 5 of Baluswamy is **not** “defined by imaginary lines extended from two parallel outside lines of” element 230.

Accordingly, for at least this additional reason, Applicants respectfully submit that claims 15 and 19 are each patentable over the cited prior art.

Claim 23

Claim 23 depends from claim 1 is patentable for at least the reasons set forth above with respect to claim 1, and for the following additional reasons.

In the overlay key of claim 23, the first and second auxiliary overlay patterns are for measuring an overlay degree using an in-line SEM (scanning electron microscope).

Neither Baluswamy nor Smith nor any combination thereof discloses or suggests such a feature.

The Office Action states that:

“Baluswamy describes the overlay key of claim 1, wherein the first and second main overlay patterns are for measuring an overlay degree using an optical microscope, and the first and second auxiliary overlay patterns are for measuring an overlay degree using an inline SEM (scanning electron microscope). (Smith page 2 Hasan et al article).

Applicants respectfully submit that the Office Action fails to place Applicants on any reasonable notice as to what combination of prior art teachings are being cited against Applicants’ claim 23. Is the Examiner citing the disclosure of Smith, or the disclosure of Hasan? The Examiner has neither listed the Hasan article in the PTO-892 “Notice of References Cited,” nor has he provided a copy of the article for Applicants’ review (see M.P.E.P. § 707.05(a)). Furthermore, the Office Action has not stated that any claim is rejected based on Hasan, but instead has merely mentioned Hasan in a paragraph that states that claim 23 is rejected over the combination of Baluswamy and Smith (not Hasan).

Accordingly, Applicants respectfully submit that whatever Hassan may disclose is irrelevant with respect to the rejection of claim 23 which is based solely on the combination of Baluswamy and Smith.

Meanwhile, Smith does not mention any scanning electron microscope at all. Smith only states that Hasan discloses “many different kinds of alignment attributes” without any mention of SEM at all.

Therefore, if anything specifically disclosed by Hasan, and not Smith, is being cited against Applicants’ claim 23, Applicants respectfully request a new non-final Office Action, together with a copy of the Hasan reference, that fairly puts Applicants on notice as to the basis of any rejection of claim 23.

Accordingly, for at least these additional reasons, Applicants respectfully submit that claim 23 is patentable over the cited prior art.

NEW CLAIMS 51-58

Applicants respectfully submit that the subject matter of claim 51 is fully supported by the originally-filed disclosure (see, e.g., FIGs. 3A-9C) and patentable over any combination of cited prior art. Meanwhile, the features of dependent claims 52-58 generally correspond to features variously recited in the originally filed claims 6-13.

Among other things, the overlay keys of claims 51-58 each include first and second auxiliary overlay patterns (on different layers), wherein at least some portion of the second auxiliary overlay pattern directly overlies at least some portion of the first auxiliary overlay pattern.

Applicants respectfully submit that no such feature is disclosed or suggested by any combination of the cited prior art.

CONCLUSION

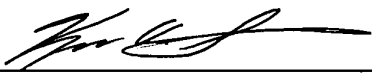
In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 1-23 and 51-58, and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (703) 715-0870 to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

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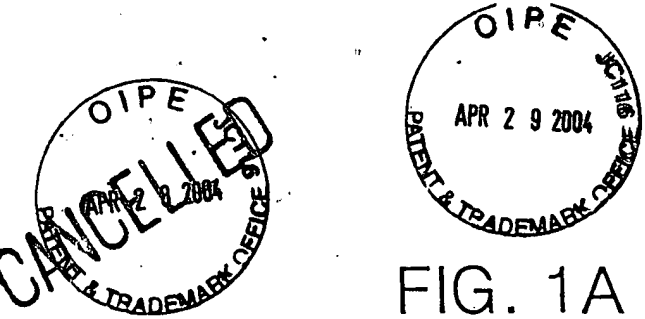


FIG. 1A
(~~Related Art~~)
PRIOR

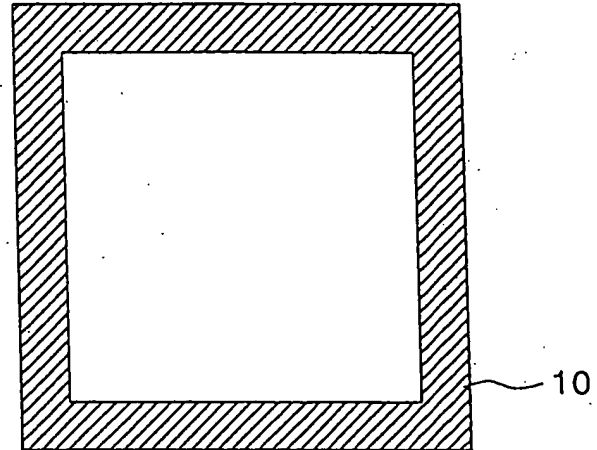


FIG. 1B
(~~Related Art~~)
PRIOR

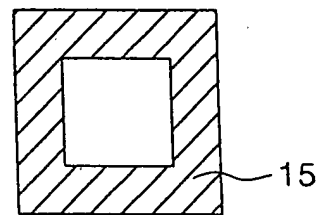


FIG. 1C
(~~Related Art~~)
PRIOR

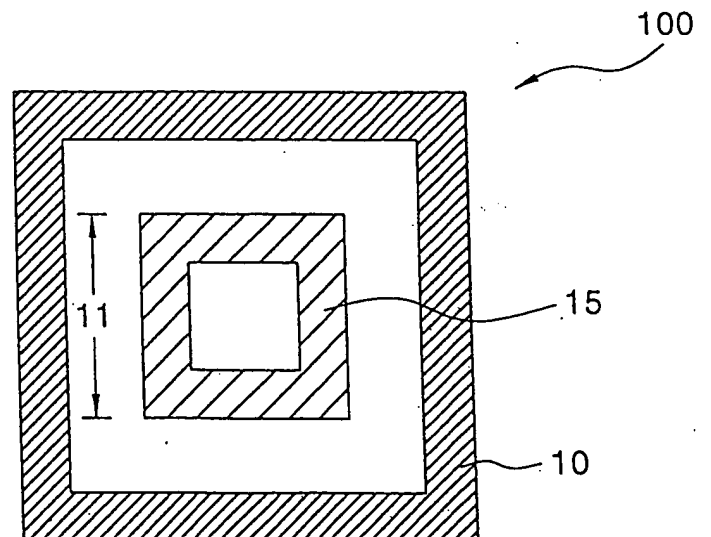




FIG. 2A
(~~Related~~ Art)
PRIOR

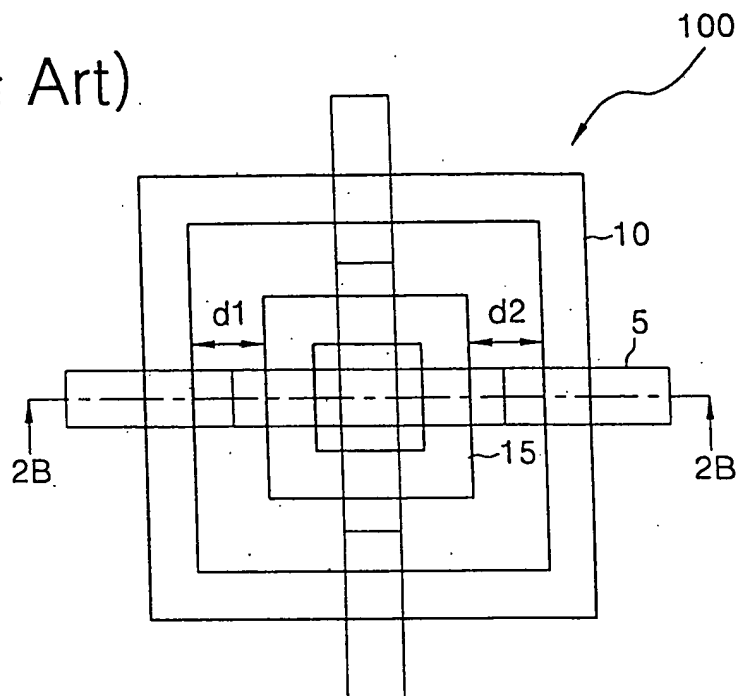


FIG. 2B
(~~Related~~ Art)
PRIOR

